

Remarks**Status of application**

Claims 1-68 were examined and stand rejected over the prior art. After review of the amendments to the claims and Applicant's remarks below, the Examiner's re-examination and reconsideration of the claims are respectfully requested.

The invention

A digital imaging system is described that provides techniques for reducing the amount of processing power required by a given digital camera device and for reducing the bandwidth required for transmitting image information to a target platform. The system only performs a partial computation at the digital imager device and completes the computation at a target computing device (e.g., desktop or server computer) where time and size are not an issue (relative to the imager). By deferring resource-intensive computations, the present invention substantially reduces the processor requirements and concomitant battery requirements for digital cameras. Further, by adopting an image strategy optimized for compression (using a transformation compressed luminosity record), the present invention decreases the bandwidth requirements for transmitting images, thereby facilitating the wireless transmission of digital camera images.

Instead of performing compute-intensive tasks, such as color interpolations and YUV transformations at the imager device, the methodology performs trivial color plane separation followed by wavelet decomposition, quantization, and generic binary compression (e.g., run-length and Huffman encoding). The compressed luminosity record may then be packaged for wireless transmission to a target device. The amount of processing necessary to go from a captured image to a compressed record of the captured image (i.e., a record suitable for storage on the digital camera) is substantially less than that necessary for transforming the captured image into color and then compressing it into a color-rendered compressed image. Further, the resulting compressed luminosity record, because of its increased compression ratios, facilitates wireless transfer of images to target platforms.

Prior art rejections

Applicant has amended the claims in an effort to further distinguish Applicant's invention from the prior art of record. More particularly, Applicant has amended independent claims 1, 21, 41 in an effort to further distinguish Applicant's invention from Acharya et al. (US Patent 6,154,493) by adding the elements of packaging the compressed luminosity information with header information identifying the individual bit-planes and transmitting the packaged, compressed luminosity information in a wireless manner using a packet-based communication protocol.

Applicant's system and methodology provides for wireless transmission of the compressed image information (i.e., luminosity information) from the digital camera to another device. For example, one embodiment includes a wireless holster for physically connecting the camera to a cellular phone to facilitate wireless transmission (Applicant's specification, page 20, lines 6-10). Applicant's invention also includes methodology for wireless transmission using a packet-based communication protocol. To facilitate wireless transmission, the compressed image information is packaged (e.g., into a single stream) with header information to identify the individual bit-streams (Applicant's specification, page 31, lines 3-6). The packaged, compressed image information can then be wirelessly transferred (e.g., via the connection to the cellular telephone) to a server computer or other device at which the image processing can be completed (Applicant's specification, page 36, lines 16-22).

The Examiner acknowledges that Acharya '493 fails to disclose that the step of transmitting compressed luminosity information is performed in a wireless manner and adds Fukuoka (US Patent 5,754,227) as teaching wireless transmission images and teaching use of a packet-based communication protocol. However, Fukuoka describes transmission of images to America On-Line using a modem. It does not describe wireless transmission of "compressed luminosity information", as provided in Applicant's amended claims. In addition, neither the Acharya '493 or Fukuoka references provide teaching of packaging compressed luminosity information with a header which identifies the individual bit-planes comprising the compressed luminosity information in the manner suggested by Applicant's specification and amended claims. Thus, it is

respectfully submitted that the amended claims distinguish over the prior art of record.


Conclusion

In view of the foregoing remarks and the amendment to the claims, it is believed that all claims are now in condition for allowance. Hence, it is respectfully requested that the application be passed to issue at an early date.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 408 884 1507.

Respectfully submitted,

Date: 12-31-2003

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by John A.
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